

In the Specification:

On page 1, after the title insert the following:

RELATED APPLICATIONS

This is a U.S. national stage of application No. PCT/DE2005/000099, filed on 25 January 2005.

On page 1, delete the paragraph on lines 6 and 7.

On page 1, change the paragraph beginning on line 9 to the following:

This patent application claims the priority of German patent application no. 10 2004 003 986.0 filed January 26, 2004, the disclosure content of which is hereby incorporated by reference.

On page 1, after line 11 insert the following:

FIELD OF THE INVENTION

The present invention is directed to a thin-film LED and, in particular, to a thin-film LED with an improved current expansion structure.

On page 1, before line 13, insert the following heading:

BACKGROUND OF THE INVENTION

On page 1, amend the paragraph beginning on line 13 as follows:

A known method for producing optoelectronic components, in particular for producing light emitting diodes on the basis of nitride compound semiconductors, is based on so-called thin-film technology. In this method, a functional semiconductor layer sequence, which in particular comprises a radiation-emitting active layer, is firstly grown epitaxially on a growth substrate, then a new carrier is applied to the surface of the semiconductor layer sequence opposite to the growth substrate, and the growth substrate is subsequently separated off. ~~Since the~~ The growth substrates used for nitride compound semiconductors, examples of said are ~~relatively expensive. Examples of such growth substrates are being~~ SiC, sapphire and of GaN. ~~[[,]]~~ Because the growth substrates are comparatively expensive, this method affords the advantage, in particular, that the growth substrate is reusable. A growth substrate made of sapphire can be stripped away from a semiconductor layer sequence made of a nitride compound semiconductor for example by means of a laser lift-off method known from WO 98/14986.

On page 2, amend the paragraph beginning on line 14 as follows:

A basic principle of a thin-film LED is described for example in I. Schnitzer et al., Appl. Phys. Lett. 63 (16), October 18, 1993, 2174 - 2176, the disclosure content of which is ~~in this~~ respect hereby incorporated by reference.

On page 3, amend the paragraph beginning on line 29 through page 4, line 10 as follows:

In order to improve the coupling-in of current in the case of InGaAlP LEDs, it is known from DE 199 47 030 A1 (which corresponds to US patent application no. 10/089,017) to use a relatively thick, transparent current expansion layer provided with a laterally patterned electrical

contact layer. In this case, the current is impressed through a central bonding pad and also through a plurality of contact webs connected to the bonding pad on the chip surface. This type of contact-making cannot readily be applied to large-area light-emitting diode chips which contain a semiconductor material having a low transverse conductivity, in particular nitride compound semiconductors, since the density of the non-transparent contact webs on the chip surface would have to be increased in such a way that a large part of the emitted radiation would be absorbed in the contact layer. A comparatively thick current expansion layer furthermore leads to an increased voltage drop and takes up a long growth time during production. Furthermore, strains may occur in a comparatively thick current expansion layer and cracks may possibly be induced by said strains.

On page 4, before line 12, insert the following heading:

SUMMARY OF THE INVENTION

On page 4, amend the paragraph beginning on line 12 as follows:

~~The invention is based on the~~ One object of the present invention is to provide ~~specifying~~ a thin-film LED comprising an improved current expansion structure which is distinguished in particular by a comparatively homogeneous current distribution over the chip area in conjunction with comparatively little shading of the chip surface by contact layer material.

On page 4, delete the paragraph beginning on line 19 through line 22 in its entirety.

On page 4, amend the paragraph beginning on line 24 as follows:

~~In~~ This and other objects are attained in accordance with one aspect of the invention directed to a thin-film LED comprising an active layer, which emits electromagnetic radiation in a main radiation direction, a current expansion layer, which is disposed downstream of the active layer in the main radiation direction and is made of a first nitride compound semiconductor material, a main area, through which the radiation emitted in the main radiation direction is coupled out, and a first contact layer arranged on the main area, ~~according to the invention the~~ The transverse conductivity of the current expansion layer is increased by formation of a two-dimensional electron gas or hole gas.

On page 5, amend the paragraph beginning on line 4 as follows:

In order to form a two-dimensional electron gas or hole gas in the current expansion layer, at least one layer made of a second nitride compound semiconductor material having a larger electronic band gap than the first nitride compound semiconductor material is preferably embedded in the current expansion layer.

On page 10, delete the paragraph beginning on line 32 through line 34 in its entirety.

On page 10 delete line 36 in its entirety.

On page 11, before line 1, insert the following heading:

BRIEF DESCRIPTION OF THE DRAWINGS

On page 11, amend the paragraph beginning on line 23 as follows:

Figure 4 shows a schematic illustration of the profile of the dopant concentration of the semiconductor layers illustrated in Figure 2A,

On page 12, insert the following heading before line 7:

DETAILED DESCRIPTION OF THE DRAWINGS